

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

WSOU INVESTMENTS, LLC, d/b/a
BRAZOS LICENSING AND
DEVELOPMENT

Plaintiff,

v.

MICROSOFT CORPORATION,

Defendant.

Civil Action No. 6:20-cv-00455
Civil Action No. 6:20-cv-00457
Civil Action No. 6:20-cv-00459
Civil Action No. 6:20-cv-00463

DEFENDANT'S RESPONSIVE MARKMAN BRIEF

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Microsoft submits this brief in response to WSOU's Opening Claim Construction Brief (Dkt. 45, "PBr.") addressing terms of U.S. Patent Nos. 7,750,286 (the "286 patent") and 8,226,241 (the "241 patent"), which are asserted against Microsoft's HoloLens 2, and U.S. Patent Nos. 8,965,978 (the "978 patent") and 9,814,988 (the "988 patent"), which are asserted against Microsoft's Xbox and Xbox Live.

I. U.S. PATENT NOS. 7,750,286 (6:20-cv-459-ADA) and 8,226,241 (6:20-cv-463-ADA)

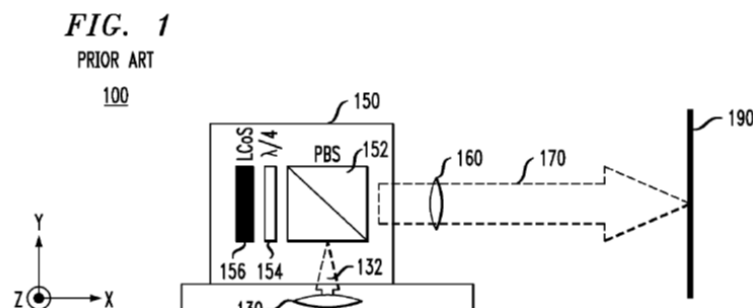
A. Background of U.S. Patent Nos. 7,750,286 and 8,226,241

The 286 and 241 patents are both directed to image projectors. The patents describe an image projector as "a device that integrates a light source, optics, electronics, and a light-modulating element for the purpose of projecting an image or a sequence of images ... onto a wall or screen for large-image viewing." 286 patent at 1:15-19, 241 patent at 1:17-21. The patents contend that such projectors are differentiated in the marketplace based on size, resolution, and performance. 286 patent at 1:19-21, 241 patent at 1:21-23.

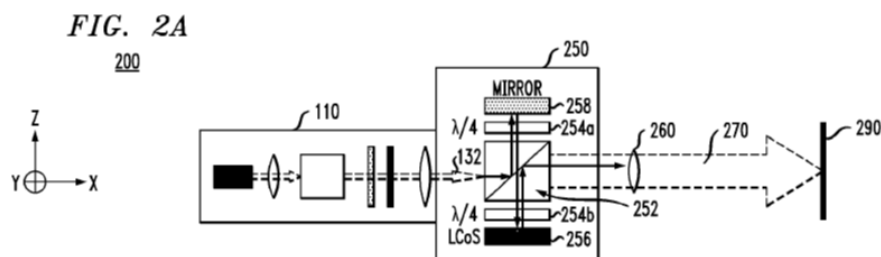
1. The 286 Patent

The 286 patent suggests that it is desirable to reduce the size of the image projector, such that it can be incorporated into, for example, a cell phone. 286 patent at 2:26-29. The overall size of a projector, of course, is determined by the size and relative orientation of its components. *Id.* at 3:44-46. One limiting factor for such projectors is the size of the spatial light modulator (SLM), a specific optical component within the projector. Similar to a transparency on an overhead projector, an SLM is a panel that displays an image that can be illuminated to project the image on a screen. SLMs are computer controlled, such that the image displayed on the SLM can be changed. The length and width of the SLM depends on a number of factors, including the number of pixels that the SLM contains (*e.g.*, 640×480), as well as its packaging. *Id.* at 3:59-4:5. In the example disclosed in the 286 patent, the SLM has a width of 15 mm, a

length of 12 mm, and a thickness of 3 mm. *Id.* When arranged in a conventional configuration, such as in the portion of Fig. 1 shown below, the height of the projector (in the Z axis) is determined by the length or width of the SLM (shown as the black bar at 156 in the part of Fig. 1 reproduced below). *Id.* at 4:8-11, Fig. 1. Thus, in this configuration, the height of the projector is at least 12-15 mm, which the patent states is too large to fit inside a cell phone. *Id.* at 4:2-8.



The alleged invention is to change the orientation of the SLM such that its dominant dimensions (length and width) are parallel to the plane of the light source. *Id.* at 4:27-30. By laying the SLM on its side, such as in Fig. 2A shown below, the height of the projector can be reduced without changing the length and width (and thereby the resolution) of the SLM. *Id.* at 4:32-37, Fig. 2A. Here, the height of the projector (in the Z axis) is no longer determined by the length and width of the SLM (*e.g.*, 12 mm × 15 mm), but rather, by its thickness (*e.g.*, 3 mm).



However, because the SLM is now parallel to the light source, a specific arrangement of optical components is needed to direct the beam from the light source down to the SLM and then back up to the output of the projector to form an image on a screen. *Id.* at 4:38-60. The 286 patent thus discloses a specific configuration of a cubic polarization beam splitter (PBS), a mirror, and

two quarter-wave plates that, together with the SLM, form a “modulator section.” *Id.*

2. The 241 Patent

The 241 patent shares an inventor with the 286 patent (Roland Ryf) and, like the 286 patent, discloses an SLM-based projector. 241 patent at 1:49-2:14. But instead of illuminating the SLM with a conventional light source, the 241 patent proposes using one or more lasers to allow the projector to project more vibrant images onto a wall or screen. *Id.* at 1:23-26. The 241 patent notes, however, that laser image projection has a problem with “speckle,” a granular structure superimposed on the perceived image, which degrades image sharpness. *Id.* at 1:26-29. The 241 patent proposes that speckle can be reduced by using specific types of broadband lasers made with both an active optical element and a nonlinear optical element inside the laser cavity. *Id.* at 1:36-41. These optical elements are said to allow the laser to generate “a plurality of spectral lines corresponding to different spatial modes of the cavity.” *Id.* at 1:41-44. These different spectral lines allegedly “produce independent speckle configurations” which when super-imposed on each other, reduce the appearance of speckling on the screen. *Id.* at 1:44-48.

B. “polarization beam splitter (PBS)” (286 Patent, Claim 15)

Claim Term	Microsoft’s Proposed Construction
polarization beam splitter (PBS)	optical component with two conjoined prisms, each of which reflects light of one polarization and transmits light of an orthogonal polarization

The parties agree that a “polarization beam splitter (PBS)” is an optical component that reflects light of one polarization and transmits light of an orthogonal polarization. The only dispute is whether the polarization beam splitter is limited to a cube, or can also be a plate.

As an initial matter, WSOU asserts that the term “polarization beam splitter” should be given its plain and ordinary meaning because it “is a term of art” readily understood by those of ordinary skill. PBr. at 3. But WSOU has it exactly backwards. It is precisely because this term is a technical term of art without a readily discernable lay meaning that a construction is

necessary. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005). The jury needs a construction to understand this term and to avoid allowing the parties' experts to argue claim construction to the jury. See *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 326 (2015). And in coming up with that construction, the use of the term in the context of the entire patent must be considered. *Teva Pharms. USA, Inc.*, 574 U.S. at 332 (Even with terms of art, courts must conduct a legal analysis to determine "whether a skilled artisan would ascribe that same meaning to that term *in the context of the specific patent claim under review.*") (emphasis in original).

Microsoft's proposed construction properly captures how one of ordinary skill in the art would understand this term as used in the patent – as a cube made of two prisms, each of which is used to reflect or transmit polarized light, depending on its polarization. Microsoft's proposed construction is drawn from the specification, which consistently describes the PBS as a cube. In the prior art projector of Fig. 1, PBS 152 is described as "a cube of about $4 \times 4 \times 4$ mm³" and the quarter-wave plate is "typically attached to a side of PBS 152." 286 patent at 3:56-59. Likewise, in the embodiment shown in Fig. 2A, "PBS 252 is a cube similar to PBS 152, [and] its Z dimension is about 4mm." 286 patent at 5:3-4. And in the embodiment shown in Figs 3A and 3B, PBS 352g is described as being "analogous to" PBS 252 of Fig. 2A. *Id.* at 5:56-62. Further, the specification describes the thickness of the modulator section as being determined, in part, by a cubic PBS. *Id.* at 4:61-63 ("the cumulative thickness of the SLM 256, quarter-wave plates 254a-b, and mirror 258 and the size of the PBS 252.") (emphasis added).

Microsoft's proposed construction is also consistent with the language of asserted claim 15, which requires the PBS to either reflect or transmit the light beam based on its polarization. For example, the PBS initially reflects the beam to "direct[] an input beam to a mirror." *Id.* at

9:14-15. After the “first quarter-wave plate imparts on the reflected beam a first polarization,” the PBS then transmits the beam through to the spatial light modulator. *Id.* at 9:17-20. And after the “second quarter-wave plate imparts on [the beam] a second polarization,” the PBS reflects it to “direct said ... beam to an output port.” *Id.* at 9:24-27.

Because the intrinsic evidence discloses only a cubic PBS, WSOU resorts to extrinsic evidence under the guise of “plain and ordinary meaning” to improperly enlarge the scope of the claim to encompass a plate PBS. PBr. at 4. As an initial matter, the Shokooh-Saremi article on which WSOU relies is directed to optical communications using wavelengths in the infrared range, rather than image projectors using visible light and is therefore of little, if any, relevance. Dkt. 45-3 at 2, 5. Not only is this extrinsic evidence “less significant than the intrinsic record in determining the legally operative meaning of claim language,” it is “unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Phillips*, 415 F.3d at 1317, 1319 (internal quotations and citation omitted). A plate PBS is structurally very different from a cubic PBS, and WSOU has made no attempt to show how a plate PBS would work in the context of the asserted claim or the specification. As one example, WSOU has not shown how the modulator section would work with a quarter-wave plate attached to a side of a plate PBS, which would create, among other things, enablement and written description issues if such a broad construction were adopted. *See, e.g., Intellectual Ventures I LLC v. Motorola Mobility LLC*, 870 F.3d 1320, 1325 (Fed. Cir. 2017) (declining to construe claim such that it “fails for lack of written description” and instead construing claim “in view of the specification.”) (citation omitted).

Finally, WSOU argues that because claim 17 recites that the PBS “comprises a beam-splitting cube,” the PBS of claim 15 must mean something broader. But “claim differentiation is

a rebuttable presumption that may be overcome by a contrary construction dictated by the written description or prosecution history.” *Howmedica Osteonics Corp. v. Zimmer, Inc.*, 822 F.3d 1312, 1323 (Fed. Cir. 2016). As discussed above, the specification only discloses the PBS as a cube. It does not disclose a plate PBS nor does it explain how such a plate PBS could be used with the alleged invention. Additionally, claim 17 does more than state that the PBS is a cube; it sets forth a specific configuration of the mirror and SLM with respect to the cubic PBS. WSOU cannot use claim differentiation to broaden the claim beyond the specification’s teachings. *Id.*

C. “quarter-wave plate” (286 Patent, Claim 15)

Claim Term	Microsoft’s Proposed Construction
quarter-wave plate	optical component that shifts a polarized light beam passing therethrough by one quarter wavelength

The parties appear to agree that a “quarter-wave plate” encompasses an optical component that shifts the phase of one polarization component of the light beam passing therethrough by one quarter wavelength. The only disputes between the parties are (1) whether the quarter-wave plate acts on polarized light, and (2) whether the shift is necessarily one quarter-wavelength, or need only be “about” one quarter wavelength.

With respect to the first point, WSOU resorts to extrinsic evidence to argue that the quarter wave plate need not act on polarized light. PBr. at 5. But WSOU’s extrinsic evidence shows that using a quarter-wave plate with unpolarized (also known as natural) light has no noticeable effect and thus even if natural light passes through the quarter wave plate, the quarter wave plate cannot be said to “act” on such light:

The quarter-wave plate is an optical element that introduces a relative phase shift of $\Delta\phi = \pi/2$ between the constituent orthogonal *o*- and *e*-components of a wave. It follows once again from Fig. 8.7 that a phase shift of 90° will convert linear to elliptical light and vice versa. It should be apparent that linear light incident parallel to either principal axis will be unaffected by any sort of retardation plate. You can’t have a *relative* phase difference

without having two components. With incident *natural* light, the two constituent *P*-states are incoherent; that is, their relative phase difference changes randomly and rapidly. The introduction of an additional constant phase shift by any form of retarder will still result in a random phase difference and thus have no noticeable effect.

Dkt. 45-5, Hecht at 349 (underlining added, italics in original). “[A] construction that renders the claimed invention inoperable should be viewed with extreme skepticism.” *AIA Eng’g Ltd. v. Magotteaux Int’l SA*, 657 F.3d 1264, 1278 (Fed. Cir. 2011) (citation omitted). The lack of any effect on natural light by a quarter wave plate is precisely why the 286 patent repeatedly and exclusively discloses the use of *polarized* light. 286 patent at 3:2-5 (“Light source 110 may further incorporate a *polarizer* (not explicitly shown) that serves *to control*, if necessary, *the polarization of output beam 132 to enable proper operation of modulator section 150.*”) (emphasis added), *id.* at 3:14-16 (“PBS 152 is oriented with respect to the *polarization of beam 132* so as to redirect substantially all light of that beam towards SLM 156.”) (emphasis added), *id.* at 3:16-20 (“Quarter-wave plate 154 is a birefringent plate that produces a retardation of about one quarter of a wavelength between *two orthogonal linear polarization components* of an optical beam normally passing therethrough.”) (emphasis added), *id.* at 4:42-45 (“PBS 252 is oriented with respect to the *polarization of beam 132* so as to redirect substantially all light of that beam towards mirror 258.”) (emphasis added), *id.* at 4:45-50 (“Quarter-wave plate 254a, which is similar to quarter-wave plate 154, produces a retardation of about one quarter of a wavelength so that the light directed to and reflected from mirror 258 *acquires a polarization* that causes PBS 252 to transmit the reflected light, as opposed to redirecting it back toward light source 110.”) (emphasis added). Only with polarized light can the two quarter-wave plates perform their respective functions, as recited in the specification and asserted claim 15, of (1) “impart[ing] on the reflected beam a first polarization that causes the PBS to direct said reflected beam to the SLM” and (2) “impart[ing] on said spatially modulated beam a second polarization

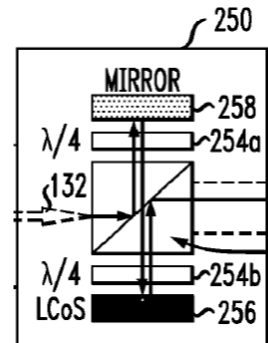
that causes the PBS to direct said spatially modulated beam to an output port to form an output beam.” *Id.* at 1:47-49, 1:52-55, 9:14-27. Only polarized light will predictably reflect or pass through the PBS in the manner required for proper operation of the projector.

With respect to the second point, the specification’s statement that the quarter-wave plate produces a retardation of *about* one quarter of a wavelength is insufficient to rewrite the meaning of this term of art, because this statement provides neither a clear definition nor a clear intent to redefine the term. *See Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (to act as its own lexicographer, patentee must clearly define a term and clearly express intent to redefine the term). One of skill in the art would understand, as the extrinsic evidence that WSOU relies on confirms, that a quarter wave plate introduces a “phase shift of 90°” and not “about 90°.” Dkt. 45-5 at 8. If the patentee wanted to allow for a *specific* range of phase shift, they could have done so through lexicography or explicit recitation of that range in the claim. Having failed to do so, the meaning of this term cannot be expanded now, especially given this vague definition would encompass structures that would render the purported invention inoperable.

The 286 patent’s use of quarter-wave plates is instructive in this regard. As the patent explains, a shift of a quarter-wavelength each time the beam passes through the quarter-wave plate is required so that the beam that is initially reflected by the PBS can ultimately pass through the PBS. In the portion of Fig. 2A shown below, the input light beam entering the left side of the PBS has a first polarization that causes the PBS to reflect it upwards towards the mirror 258. On its way to the mirror 258, however, the beam passes through quarter-wave plate 254a and has the phase of one polarization component shifted by one quarter wavelength or 90° to produce, *e.g.*, circularly polarized light. Ex. 1 at 5.23. After reflecting off the mirror 258, the

beam again passes through quarter-wave plate 254a and has the phase of a polarization component shifted by another quarter wavelength or 90°. At this point, the beam has had its polarization transformed again to, *e.g.*, linearly polarized light, but with its polarization rotated 90° from the initial linear polarization. *Id.* at 5.24-25.

Because of this precise polarization transformation, the beam will not be reflected by the PBS, but rather, will pass directly through the PBS to the SLM 256. *See* 286 patent at 4:45-51. Thus, it is the shifting of the phase



of polarized light by one quarter wavelength each time the light passes through the quarter-wave plate that allows the PBS to reflect the beam or pass it through as appropriate to enable the beam to follow the intended path through the PBS, to the mirror, back through the PBS to the SLM, back through the PBS again, and then to the output as shown in the portion of Fig. 2A above.

The word “about” that WSOU seeks to add to the proposed construction is untethered to any practical limitation, and would inject unnecessary ambiguity into the construction, leaving the scope of this term undefined. WSOU’s proposal is particularly improper when considering the context of the patent, which relates to compact optics, where precision is paramount. In contrast, Microsoft’s proposed construction comports with the specification, claims, and the understanding of one of ordinary skill in the art, and it should therefore be adopted by the Court.

D. “spatial light modulator (SLM)” (286 Patent, Claim 15; 241 Patent, Claim 15)

Claim Term	Microsoft’s Proposed Construction
spatial light modulator (SLM)	optical component with a 2-dimensional arrangement of pixels that displays an image

As with the PBS term discussed above, WSOU ignores the intrinsic evidence and the fact that this is a term of art without a readily ascertainable meaning to a jury, and instead relies only on extrinsic evidence to argue that Microsoft’s construction is too limiting. Again, this is

because the intrinsic evidence (and, in fact, even the extrinsic evidence) supports Microsoft's construction. *See Phillips*, 415 F.3d at 1317. Indeed, the very problem that the 286 invention seeks to solve is a reduction in the overall size of the image projector, which is determined by the size of its components and in particular, the SLM. 286 patent at 3:44-46, 3:55-56, 4:8-17. In turn, the size of the SLM is determined by the size of each pixel and the total number of pixels in the two-dimensional array that makes up the SLM (*e.g.*, 640×480 for a VGA quality SLM). *Id.* at 3:59-4:5. The crux of the 286 patent is to orient the SLM in a different direction such that its lateral dimensions no longer impact the size of the image projector. *Id.* at 4:27-37.

Both the 286 and 241 patents, as well as U.S. Patent 8,109,638 (the "638 patent") (which lists the same inventors as, and is incorporated by reference into, the 241 patent¹) describe the SLM as having a length and width resulting from having a two-dimensional array of pixels. 286 patent at 3:59-62 ("The size of SLM 156 depends on the pixel size and the total number of pixels therein. For example, a typical VGA-quality LCOS SLM that can be used as SLM 156 has a two-dimensional array of 640×480 pixels"), 241 patent at 4:57-60 ("SLM 156 typically has a generally rectangular active area (i.e., the area that contains reconfigurable pixels) suitable for displaying rectangular images."), Ex. 2, 638 patent at 4:29-32 ("SLM 156 typically has a generally rectangular active area (i.e., the area that contains reconfigurable pixels) suitable for displaying rectangular images."). Moreover, the SLM's length and width are key constraints on the size of the projector that the 286 patent seeks to overcome. 286 patent at 4:15-17.

The 286, 241, and 638 patents further disclose that the pixels of the SLM can be controlled to be OFF or ON to display an image. 286 patent at 3:31-35 ("*Each reflection pattern displayed by the ON-state pixels of SLM 156 represents an image to be projected onto screen*

¹ The 241 patent incorporates by reference patent application Ser. No. 12/017,440, which issued as the 638 patent. 241 patent at 3:8-10.

190, and the SLM can display a new reflection pattern for each laser pulse. In effect, projection lens 160 images the *reflection pattern displayed by SLM 156* onto screen 190.”) (emphasis added), 241 patent at 4:46-50 (“*Each reflection pattern displayed by the ON-state pixels of SLM 156 represents an image* to be projected onto screen 190, and the SLM can display a new reflection pattern for each burst of light. In effect, projection lens 160 images the *reflection pattern displayed by SLM 156* onto screen 190.”) (emphasis added), Ex. 2, 638 patent at 2:14-16 (“modulating said illuminating light beam with a *spatial pattern displayed by a plurality of pixels of the SLM to form said image*”) (emphasis added), Ex. 2, 638 patent at 4:18-22 (“*Each reflection pattern displayed by the ON-state pixels of SLM 156 represents an image* to be projected onto screen 190, and the SLM can display a new reflection pattern for each laser pulse. In effect, projection lens 160 images the *reflection pattern displayed by SLM 156* onto screen 190.”) (emphasis added). Thus, the intrinsic evidence fully supports Microsoft’s construction.

WSOU’s extrinsic evidence does not suggest a different result. Indeed, both the Warde article and the Wikipedia page (to the extent it has any evidentiary value) on which WSOU relies disclose that SLMs are two-dimensional devices, consistent with Microsoft’s construction. The Warde article begins with “*Two-dimensional* spatial light modulators (SLM’s)” Dkt 45-6, Warde at 3971 (emphasis added). Warde further explains that its SLM can be controlled by “a two-dimensional electrical voltage or current pattern.” *Id.* Indeed, the charge-transfer-plate (CTP) which Warde uses to control its CTPSLM has the CTP pins hexagonally packed in a two-dimensional array. *Id.* at 3971-72. Thus, even without addressing whether the CTPSLM of Warde could be functionally incorporated as an SLM into the invention of the 286 and 241 patents, it is clear that even this CTPSLM is arranged in a two-dimensional array.

The Wikipedia page discloses that an SLM is basically an overhead projector

transparency that is controlled by a computer. Dkt 45-7 at 1. Consistent with Microsoft's definition, a transparency is a 2-dimensional image through which light is projected. Examples in the Wikipedia page, such as the Electrically-addressed Spatial Light Modulator is said to be "commonly available at resolutions up to SXGA (1280 × 1024)" with "an active area of about 2 cm²." *Id.* This description of the EASLM is again consistent with Microsoft's construction, which requires the SLM to have a 2-dimensional arrangement of pixels that displays an image.

II. U.S. PATENT NO. 8,965,978 (6:20-cv-457-ADA)

A. Background of U.S. Patent No. 8,965,978

The 978 patent arises in the context of online gaming over the Internet or other networks. Some of those online games allow for players to form groups and play together as a team. The 978 patent is directed to the formation of these groups of players. 978 patent at 1:8-11. A stated goal of the patent is to allow users to "easily and quickly communicate with one another" to be able to play games with one another, including with users of similar gaming skill levels. *Id.* at 1:34-35. When the user requests to play a game, an agent associated with the user determines which of the user's buddies are online and available to play the game. *Id.* at 4:13-21.

The patent's so-called "novel architecture" may include a virtual lobby that is "operable to form and maintain user groups, where each group may be associated with" an online game. *Id.* at 1:53-57. Lobbies as described in the 978 patent also carry out so-called "matchmaking activities." *Id.* at 7:54-57. Thus, when a user wants to play a game, its agent coordinates with other available users' agents to forward their identities to a lobby, which matches available users into a group. *Id.* at 5:1-6. Groups formed and managed by lobbies include those containing "users who have the same skill level in a particular game or games." *Id.* at 7:59-65; *see id.* at 7:66-8:17. The lobby then coordinates with a game server to initiate the game. *Id.* at 5:6-10.

However, if the lobby cannot form a group that meets the user's requirements, (*e.g.*,

because the users available to the lobby do not meet a particular skill level), it forwards the requirements of the request to one or more “third party or remote global lobbies.” *Id.* at 9:41-46. Each global lobby, having “knowledge of many more users and their preferences, etc., that may satisfy the request,” attempts to identify users from its larger pool that satisfy the requirements and sends their identities to the forwarding lobby for group formation. *Id.* at 9:46-53.

WSOU asserts independent claims 1 and 12 of the 978 patent. The term “lobby” is found only in system claim 12, while the term “third party lobby” is found in both method claim 1 and claim 12. Both claims are directed to “forming one or more groups associated with one or more online ga[m]ing sessions” that comprise various steps. *Id.* at 10:5-6, 11:3-4.

B. “lobby” (Claim 12)

Claim Term	Microsoft’s Proposed Construction
lobby	software and/or hardware that matches users to form groups

The concept of a “lobby” is fundamental to the 978 patent and the asserted claims. As described in the 978 patent specification, the lobby is the component of the system architecture discussed in the patent that actually forms and manages groups of game players and matches up players into groups. 978 patent at 7:55-57. However, the term “lobby” has no single, common, or accepted meaning in the realm of online gaming or in the software context more generally, and thus must be construed. Microsoft’s proposed construction is anchored to the claims, closely aligns with the 978 patent description, and is consistent with the patentee’s explanation to the Patent Examiner. By contrast, WSOU simply asserts that the term “lobby” has a plain and ordinary meaning, but what that meaning might be is left wholly undisclosed.

As an initial matter, a “lobby” in common parlance refers to a portion of a building at or near the entrance, such as a hall, foyer, or waiting room. That description of a “lobby” makes no sense in this context. It is the intrinsic evidence that provides the guidance needed here.

As described in the asserted claims, the lobby must (1) compare profiles of users with attributes of a request to determine the users' gaming skill level and (2) form a gaming group containing those users that have substantially the same gaming skill level as that required by the request. *Id.* at 10:11-20, 11:9-18.

The specification, first, explicitly discloses that the lobby takes the form of either hardware or software, *i.e.*, "software or firmware applications" that are stored on a computer readable medium that are part of a larger device. *Id.* at 2:40-47, 8:50-61. Indeed, this is exactly what the patentee told the Patent Office to obtain allowance of the 978 patent claims: the lobby of independent claim 12 correlated to these same paragraphs in the originally filed specification describing the lobby as software, firmware, and/or hardware. Ex. 3, Appellants' Br. on Appeal (Dec. 17, 2010) at 2; Ex. 4, Specification (Mar. 31, 2006) at 4, 16.

The specification is also unambiguous that the lobby must perform the functions of group formation and management, and matchmaking: It describes that "[i]n general, lobbies provided by the present invention carry out: (a) group formation and management, and (b) matchmaking activities associated with sessions." 978 patent at 7:55-57. This is no mere example, it is a general principle. When a patent "describes the features of the 'present invention' as a whole, this description limits the scope of the invention." *GPNE Corp. v. Apple Inc.*, 830 F.3d 1365, 1371 (Fed. Cir. 2016).

Every embodiment of the lobby describes it as performing these same two inter-related functions of matching users and forming groups. *See, e.g.*, 978 patent at 7:59-63 ("the lobby 4 may form and manage groups that contain: (1) those users who are interested in playing a particular game or games; ... and (3) those users who have the same skill level in a particular game or games"); *id.* at 8:12-17 ("upon receiving each identity of the invited third party users the

lobby 4 determines through its matchmaking functions that each user is qualified to play a game or otherwise communicate with the user of device 200. Thereafter, the lobby 4 is operable to form a group that consists of all of the identified third party users along with the user of device 200). “[W]hen a patent ‘repeatedly and consistently’ characterizes a claim term in a particular way, it is proper to construe the claim term in accordance with that characterization.” *GPNE Corp.*, 830 F.3d at 1370.

C. “third party lobby” (Claims 1 and 12)

Claim Term	Microsoft’s Proposed Construction
third party lobby	lobby separate from the local lobby associated with the gaming session

A “third party lobby” must logically be a type of “lobby,” and it is explicitly described by the 978 patent as the separate, backup lobby to the local lobby making the first attempt to match online game players into groups. As with the term “lobby,” “third party lobby” has no common, accepted meaning, and simply claiming that it should be given its plain and ordinary meaning is meaningless. It is only in the context of the 978 patent that the term makes any sense.

The asserted claims themselves make clear that the third party lobby must be separate from the lobby that initiates the gaming session, whatever that lobby is called, since that “lobby” forwards the requirements of the user’s request to the “third party lobby”:

forward requirements of the request on *to a third party lobby* to identify the third party users that satisfy the request; and *receive* an identification of each third party user that satisfies the request.

978 patent at 11:22-26 (emphasis added); *id.* at 10:24-28. Because the lobby *forwards* the request to a third party lobby, the forwarding lobby and third party lobby must be separate. Moreover, the claims require that the request is forwarded to “*a third party lobby*,” confirming that the third party lobby is separate from the forwarding lobby.

The specification emphasizes the distinction between the recited lobbies. When “the

lobby 4 cannot form a group that meets the requirements of a request,” it “may forward the requirements of the request on to one or more, third party or remote global lobbies.” *Id.* at 9:41-46. In this same passage, the specification interchangeably refers to the lobby 4 as “*local lobby 4*” to distinguish it from the third party lobby, which it also refers to as a *remote global lobby* or *global lobby*. *Id.*

It may occur that the lobby 4 cannot form a group that meets the requirements of a request initiated by the user of device 200. When this occurs the *local lobby 4* (“*local*” because it is associated with agent 3 and client 2) may forward the requirements of the request on to one or more, *third party or remote global lobbies* (not shown in FIG. 1). Each *global lobby* then attempts to identify users (and their profiles) that have attributes which satisfy the requirements of the request. Each *global lobby* has knowledge of many more users and their preferences, etc., that may satisfy the request than the *local lobby 4*. An identification of some sort of each user is sent to the *locally lobby 4* by the respective *global lobby*. *Thereafter, the local lobby 4 may form a group.*

Id. at 9:41-53. Thus, contrary to WSOU’s argument that the term “local lobby” would be confusing to the jury, the specification clearly distinguishes between the term “local lobby” or “lobby 4” and the third party or remote global lobby. Microsoft’s construction comports with common sense and finds support in the claims and intrinsic evidence, and should be adopted.

D. “gaining” (Claims 1 and 12)

Claim Term	WSOU’s Proposed Construction	Microsoft’s Proposed Construction
gaining	gaming	gaming

The parties agree that the term “gaining” in claims 1 and 12 of the 978 patent was an error made by the USPTO and should be understood to mean “gaming.”

III. U.S. PATENT NO. 9,814,988 (6:20-cv-455-ADA)

A. Background of U.S. Patent No. 9,814,988

Game consoles in the early 2000s, when the 988 patent was filed, could be connected to a television to allow users to play games, but these consoles were otherwise limited in their

functionality. 988 patent at 1:5-14. The 988 patent describes an after-market way to increase a console's functionality: an adaptor for a video game console that allows users to gain access to interactive television services. *Id.* at Abstract, 1:18-21. To provide game consoles the additional ability to function as an interactive television receiver, the patent specification describes the adaptor as including: (1) a TV tuner for receiving broadcast TV channels (*id.* at 1:24-26, 1:62-65, 2:8-11), (2) a modem so the user can connect to a media server to download/stream videos or a game server to download games (*id.* at 1:31-33, 1:65-2:4, 2:11-19), (3) a hard disk for storing video data and game history data (*id.* at 1:29-30, 2:19-22), and (4) a CPU for decoding and encoding video data (*id.* at 2:35-41).

Because of the 988 patent's focus on receiving television signals, for security reasons, that video data, whether received from broadcast TV or media server, must be encrypted. *Id.* at 2:29-32. The CPU in the adaptor uses an encryption key (stored in a smart card plugged into the adaptor unit) to decrypt the received video data. *Id.* at 2:32-38. However, because other devices can be connected to the link between the adaptor unit and the game console and can intercept the video, the 988 patent discloses that the adaptor unit re-encrypts the video data with a second key before sending it to the game console. *Id.* at 2:38-41, 2:66-3:2. The adaptor unit also provides the game console with a video player module that includes the encryption key, such that the game console can execute the video player module to play the video. *Id.* at 2:48-56, 2:60-66.

With respect to game play, since that is the original purpose of the game console, the 988 patent discloses that the hard disk in the adaptor unit can be used to store game history data. *Id.* at 1:29-30. When the user plays a game and saves their current position, the game controller (in the game console) sends the game history data to the adaptor unit for storage in the hard disk. *Id.* at 4:55-66. When the user later decides to resume playing the game, the game controller in the

console requests the game history data from the hard disk in the adaptor unit and resumes the game using the previously stored game history data. *Id.* at 4:65-5:12. Games downloaded from the remote game server can also be stored in the hard disk of the adaptor unit. *Id.* at 5:21-24.

B. “adaptor unit” (Claim 20)

Claim Term	Microsoft’s Proposed Construction
adaptor unit	a device, having a video receiver, hard disk, and CPU that encodes video data, that provides a game console with access to interactive services

The invention of the 988 patent is an adaptor that provides a game console with access to interactive services. The patent uses the terms “adaptor” and “adaptor unit” interchangeably.

“Adaptors” and “adaptor units” as used in the 988 patent have a precise meaning and purpose—providing a game console with access to interactive services through a device with video receiver, hard disk, and certain CPU components. WSOU’s assertion that “adaptor unit” has a plain and ordinary meaning requiring no construction is unhelpful to understanding what the term means in the context of the patent. In lay terms, an “adaptor” (and thus an adaptor unit) normally refers to a device for connecting two apparatuses or parts of an apparatus together. For example, the term “adaptor” is commonly used to refer to a variety of different adaptors, such as an AC adaptor, a travel plug adaptor, or a computer adaptor such as a USB adaptor. Clearly, that is not how the term is used in the 988 patent. Rather, the adaptor of the 988 patent provides access to interactive services to a game console that cannot otherwise access such services.

Microsoft’s construction comports with the intrinsic evidence, which describes that the adaptor unit of the 988 patent is a device that, when connected to a game console, enables the game console to receive broadcast television channels (988 patent at 1:24-26), connect to a media server to download video data (*id.* at 2:11-14), store received video files (*id.* at 2:19-22), and decode and encode video data (*id.* at 2:35-41). Thus, the adaptor unit is integral to the core

goal of the 988 patent, and it seeks to achieve this goal via a video receiver, hard disk, and CPU that encodes video data, thus allowing the game console to access interactive services.

The specification consistently describes the adaptor unit as having a video receiver. One type of video receiver is a television tuner, which receives broadcast television channels. *Id.* at 1:24-26 (“[t]he adaptor includes a television tuner for receiving broadcast television channels”), 2:8-11 (“the adaptor unit 3 includes a television tuner 31 for receiving video signals from the overhead satellite 13 or the broadcast transmitter 11 via the television aerial 15.”). Another type of video receiver is a modem, which provides access to remote servers. *Id.* at 1:31-33 (“The adaptor may also include a modem via which the user can gain access to remote servers connected to a data network.”), 2:11-14 (“The adaptor unit 3 also includes an ADSL modem 33 for connecting the adaptor unit 3 to the data network 19 so that the adaptor unit 3 can receive video data from the remote media server 17.”). Either type is capable of receiving video data. *Id.* at 2:29-32 (“the video data received by the television tuner 31 and the ADSL modem 33 is encoded MPEG video data”). And while the embodiments described in the 988 patent include both types of video receivers, at least one is required. *Id.* at 6:1-4 (“In the above embodiment, the adaptor unit included both a television tuner and an ADSL modem. As those skilled in the art will appreciate, in an alternative embodiment one of these video receivers may be omitted.”). *GPNE Corp.*, 830 F.3d at 1370 (claim terms construed in accordance with repeated and consistent characterization in patent specification).

Once the video data is received by either the tuner or modem, it needs to be decrypted and re-encrypted for sending to the game console. The specification discloses that it is the adapter unit CPU 47 that performs the decryption and re-encryption. *Id.* at 2:35-41 (“A central processing unit (CPU) 47 runs a decryption module 49 stored in a memory 51 using the

decryption key 41 to decrypt the received video data. The adaptor unit CPU 47 then re-encrypts the decrypted video data using an encryption module 53 stored in the memory 51 together with an encryption key 53 (labelled Key 2) stored on the smart-card 43.”) Therefore, the CPU is an integral part of the functionality provided by adaptor unit.

The specification also states that the adaptor unit has a hard disk for storing video and game history data. *Id.* at 1:29-30; 2:19-22 (“The adaptor unit 3 also includes a hard disk 39 into which received video files can be recorded for subsequent play out to the user on the television 5”), 4:55-58 (“the controller module 95 allows a user to save a current position in a game being played by storing the necessary game history data in the hard disc 39 of the adaptor unit 3.”).

WSOU appears to be making a claim differentiation argument that, because unasserted claim 1 recites the adaptor unit as including certain components such as a video data receiver and large capacity storage device, the adaptor unit of claim 20 cannot be construed to include these components. This argument misapprehends the law. Claim differentiation presumes that an independent claim should not be construed as requiring a limitation that already appears in a dependent claim such that the independent and dependent claims become coextensive. *Curtiss-Wright Flow Ctr. Corp., v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006). There is no such risk here, and WSOU’s claim differentiation argument is misplaced. Were WSOU’s argument to be taken literally, any component recited as part of the adaptor unit in claim 1 could not be part of the adaptor unit of claim 20, regardless of what the patent specification discloses or requires.

All of the components of Microsoft’s proposed construction are described as essential for the adaptor unit to provide the game console with access to interactive services, and the Court should construe “adaptor unit” as “a device, having a video receiver, hard disk, and CPU that encodes video data, that provides a game console with access to interactive services.”

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CERTIFICATE OF SERVICE

I certify that on January 29, 2021, I electronically filed the foregoing with the Clerk of Court using the CM/ECF system, which will send notification of such filing to all counsel of record as identified below.

/s/ Irene Yang
Irene Yang